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Research Paper Title: "**Integration of Technology in ODL: NEP-2020 Initiatives & its Fall-out Effects**."

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DECLARATION

I, the undersigned, hereby would like to explicitly state that the write-up titled, "**Integration of Technology in ODL: NEP -2020 Initiatives & its Fall-out Effects**" is original and has not been published earlier, or that it is not under consideration for possible publication elsewhere.

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Integration of Technology in ODL : NEP-2020 Initiative and its Fall-Out Effects

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Abstract

Online and Distance Learning (ODL) mode of education is expected to serve three basic yet distinct purposes of Equity, Expansion and Excellence in education to achieve our national goal of 'Education for All,' without compromising on quality of education. India has emerged as a world leader in ICT (Information and Communication Technology). We are moving towards a digital society and knowledge economy through 'Digital India' campaign. Role of education is vital in this transformation where usage and integration of technology at all levels will be of paramount importance. This paper examines the provisions of technology initiatives adopted by National Education Policy (NEP) 2020 for education sector in general and for ODL mode of education in particular. It also discusses its likely fall-out effects.

Keywords

Online Distance Learning (ODL), 3 E's in Education (Equity, Expansion, Excellence), Technology, National Education Policy (NEP) 2020, Information and Communication Technology (ICT).

Introduction

Information and Communication Technology is a prime resource to overcome the limitations in ODL mode of education such as remote location of the learners who are in large numbers wherein the institution has to provide various services to the learners at different stages of a student-learning life cycle with limited human resources available. The various stages of student learning life cycle are:

1. Admission stage
2. Learning stage
3. Evaluation stage
4. Certification stage

ODL mode of education requires ICT infrastructure to cater to various stages of a student lifecycle. There are following sub-components of the ICT infrastructure:

1. The network of infrastructure
2. The computing infrastructure
3. The system and application software
4. The Internet Service Provider (ISP) and internet bandwidth
5. The security infrastructure
6. The policy framework

Methodology

The researcher has mainly scanned and studied the published data pertaining to the topic including the NEP-2020 document. Fall-out effects of the provisions of technology initiatives have been identified by way of Delphi method.

Technology Initiatives in NEP-2020 for Education Sector

NEP-2020 talks about the transformational role of education for making India a digitally driven society and knowledge based economy. While education will be at the core of this transformation, technology will improve the process of education and its outcome. Thus, usage of technology and its integration into education becomes absolutely essential. Emerging technologies such as artificial intelligence, machine learning, robotics and automation, internet of things, block chain, cloud computing, smart boards, hand-held devices, e-proctored exams are exponentially expanding and impacting teaching-learning methods within the classroom and beyond the classroom. This requires in-depth research on both the fronts.

In light of the above, NEP-2020 has recommended formation of National Educational Technology Forum (NETF) to facilitate decision making on induction, deployment and usage of appropriate technology in educational institutions by providing evidence-based advice to central and state government agencies. The focus of technological advancements will be for enhancements of teaching, learning and evaluation methods; training of teachers; improving educational access; educational governance; management, administration, admission, attendance, evaluations, etc. A multitude of multi-lingual educational software will be custom designed, tested and made available for students and teachers at all levels. Tech-enabled education platforms such as DIKSHA/SWAYAM will be integrated into education system. Disruptive technologies such as artificial intelligence,

3D/7D virtual reality will be embedded into education system from time to time after a periodical review by NETF. Higher Education Institutions (HEIs) will prepare basic versions of instructional materials and online courses in cutting-edge domains for up-skilling the students towards job readiness. It is necessary to emphasize ethical issues and legal issues associated with artificial intelligence based technologies and data handling, data protection, etc. Other technologies impacting our lives are renewable energy, water conservation, sustainable farming, soil protection, environmental preservation and green initiatives. These may be taught to the students.

Technology Initiatives in NEP-2020 for ODL Mode of Education: Ensuring Equitable Use of Technology

NEP-2020 drives the point to reap the benefits of ODL mode of education while addressing the drawbacks. The ODL mode of education should adequately address concerns of equity. Teachers in the conventional education system will require special training for online teaching, interactions, on line e-proctored examinations. Online teaching has to be embedded with experiential and activity based learning to make it wholesome and effective.

NEP-2020 recommends following key initiatives for blending ODL mode of education with regular or conventional education:

1. Pilot studies for online education by national agencies for review of results and continuous improvement.

2. Digital infrastructure, which is open, inter-operable, evolvable for use on multiple platforms to provide multi-point solutions.

3. Online teaching platforms and tools. SWAYAM/DIKSHA can be extended further. Two-way audio-video online classes is the need of the hour.
   A digital repository of coursework content, simulations, games, augmented reality and virtual reality will be developed for dissemination and use.

4. Addressing Digital Divide: Television, Radio, Community Radio will be deployed for telecasts and broadcasts. Such educational programmes will be made available round the clock throughout the year in different languages.

5. Virtual Labs: Existing e-learning platforms like DIKSHA, SWAYAM, SWAYAMPRABHA will be deployed for creating virtual labs for practical and hands-on experience for students.

6. Training and incentives for teachers: Teachers will be trained so that they can create high quality online content by using online teaching platforms and tools.

7. Online assessment and examination: National Assessment Centre will design and implement assessment frameworks. New technologies like e-proctored exams will be embraced.

8. Blended models of learning: ODL mode of education will be suitably merged into face-to-face, in person learning.

9. Laying down standards: NETF and other statutory agencies shall set-up content standards, technology and methodology for online teaching learning.

NEP-2020 recommends creation of a unique national-level centre for building of state-of-the art digital infrastructure, digital educational content and capacity clubbed with effective delivery mechanism to the beneficiaries.

NEP-2020 Fall-Out Effects of Technology Initiatives

While the policy focuses on multiple aspects, an interwoven thread runs through the policy is the interdependence of education and technology. Ours is a data-driven society, and there is a growing need to welcome and adopt the usage of technology in the field of education. The policy pushes forward a central theme of extensive and effective use of technology in teaching and learning, eliminating language barriers, increasing access and enhancing quality and good planning and governance mechanism in educational institutions. While the policy is a novel and progressive document, it is necessary to design and develop a comprehensive plan of action for pushing forward technological proficiencies to assist successful engagement with technology and its future advancements while providing effective safety measures for data protection and data privacy. Ed-tech companies can collaborate with educational institutions for developing customised online platforms or courses to increase reach among students. NETF can collaborate with Ed-tech industry to

streamline research and to adopt industry-led best practices.

Conclusion

Integration of technology in ODL is a step in the right direction. NEP-2020 drives technology initiatives in the education sector and in the ODL mode of education in particular. Whereas ODL mode of education provides equity and scope for expansion, a lot needs to be done towards achieving excellence in this mode of education. Top 100 universities as per NIRF Rankings (2020) have already been allowed by UGC to launch ODL mode of education. Post COVID-19 pandemic, a new blended model of education will emerge, which is necessary and inevitable. Stakeholders like industry partners, content and book providers, education-technology players, assisted technology players, ICT infrastructure providers have a lot to offer to educational institutions in terms of Research & Development (R&D), co-partnerships, collaborations, MOUs, content creation, delivery mechanisms, e-proctored examinations, assistive devices and many more. Educational institutions in-turn will benefit in terms of quality content creation and its effective delivery by the teachers to the student beneficiaries.

It is imperative to prioritise the technology initiatives and implement the same gradually. Efforts should be collaborative. I am sure it would be a win-win situation for the stakeholders involved in the education system.

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